

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

RETO SCHOEB

Application No.: Not yet assigned

Filed: Herewith

For: METHOD FOR HOLDING A
SUBSTANCE IN SUSPENSION AS
WELL AS A BIOREACTOR

PRELIMINARY AMENDMENT

San Francisco, CA 94111
October 31, 2001

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to the examination of the above-referenced application, please enter the following amendments and remarks.

IN THE SPECIFICATION:

Page 1, immediately following the title of the application, insert

--Related Application

This application is a continuation-in-part application of the pending application S.N. 09/655,203 filed September 5, 2000 and titled "BIOREACTOR AND METHOD FOR FLUIDLY SUSPENDING A PRODUCT". --

IN THE ABSTRACT:

Please substitute the following amended, clean version of the Abstract (a marked-up version of the changes to the Abstract is attached to this Amendment):

METHOD FOR HOLDING A SUBSTANCE IN SUSPENSION AS WELL AS A
BIOREACTOR

ABSTRACT OF THE DISCLOSURE

The method for the holding of a substance such as a tissue part in sus-pension in a bioreactor (61) is characterized in that the substance (73) is acted upon with a fluid; and in that the flow of the fluid acts counter to gravity in such a manner that the substance (73) is held in suspen-sion. The bioreactor (61) with a container (62) for a substance (73) which is to be acted upon with fluid comprises a first flow chamber (66a) to which a flowing fluid can be supplied, with the first flow cham-ber (66a) being designed in such a manner that the fluid which flows upwardly therein has a lower speed with increasing height.

IN THE CLAIMS:

Please substitute the following amended, clean versions of the indicated claims (a marked-up version of the changes to the claims is attached to this Amendment):

3. (amended) Method in accordance with claim 1, characterized in that the substance (73) is acted upon with at least one fluid jet.

4. (amended) Method in accordance with claim 1, characterized in that the position of the substance (73) in the biore-actor (61) is measured by a sensor (85); and in that the speed of the fluid in the bioreactor (61) is regulated in dependence on the position of the substance (73) in such a manner that the sub-stance (73) is held in flotation in a predetermined position.

5. (amended) Method in accordance with claim 1, char-acterized in that a downward flow of the fluid which flows in the direction of gravitation is produced in the bioreactor (61) in addi-tion; and in that a gaseous fluid, in particular air or oxygen, is led in into this downwardly flowing fluid.

9. (amended) Bioreactor (61) in accordance with claim 7, characterized in that the first flow chamber (66a) is designed to widen upwardly.

11. (amended) Bioreactor (61) in accordance with claim 7, characterized in that at least one fluid line (76b) opens into the first flow chamber (66a), preferably from below or arranged later-ally with respect to the flow chamber (66a).

12. (amended) Bioreactor (61) in accordance with claim 7, characterized in that at least one fluid guiding means (66) is ar-ranged in the container (62) which forms the first flow chamber (66a), with the fluid guiding means (66) being designed such that the first flow chamber (66a) widens upwardly.

16. (amended) Bioreactor (61) in accordance with claim 13, characterized in that the hollow body (66b) is formed in the shape of truncated circular cone.

17. (amended) Bioreactor (61) in accordance with claim 7, characterized in that the container (62) has at least one closeable opening (62c) above.

19. (amended) Bioreactor (61) in accordance with claim 17, characterized in that the closeable opening (62c) is arranged above the first flow chamber (66a).

20. (amended) Bioreactor (61) in accordance with claim 7, characterized in that the fluid conveying apparatus (65) is arranged outside the container (62) and is connected in a fluid guiding manner via lines (70, 71) to the container (62).

21. (amended) Bioreactor (61) in accordance with claim 7, characterized in that the fluid conveying apparatus (65) comprises a fluid conveying means (65c), in particular a vaned wheel; and in that the fluid conveying means (65c) is arranged inside the container (62).

24. (amended) Bioreactor (61) in accordance with claim 22, characterized in that the fluid conveying apparatus (65) comprises a magnetic coupling drive which is designed to be adapted for coupling to the rotatable motor part (65b).

25. (amended) Bioreactor (61) in accordance with claim 22, characterized in that the rotatable motor part (65b) of the electric motor is journalled at least with respect to one degree of freedom with actively or passively magnetically acting means.

27. (amended) Bioreactor (61) in accordance with claim 1, characterized in that a second flow chamber (66f) is arranged above the first flow chamber (66a) and is designed in such a way that the fluid flowing from the top to the bottom therein has a smaller speed with decreasing height.

REMARKS:

Claims 1-29 are pending.

Amendment is made to delete a minor informality in the Abstract and to eliminate all multiple dependencies from the claims, thereby avoiding the need to pay the multiple dependent surcharge.

Respectfully submitted,


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MARKED-UP VERSION OF THE CHANGES TO THE ABSTRACT

Abstract of disclosure:

The method for the holding of a substance such as a tissue part in suspension in a bioreactor (61) is characterized in that the substance (73) is acted upon with a fluid; and in that the flow of the fluid acts counter to gravity in such a manner that the substance (73) is held in suspension. The bioreactor (61) with a container (62) for a substance (73) which is to be acted upon with fluid comprises a first flow chamber (66a) to which a flowing fluid can be supplied, with the first flow chamber (66a) being designed in such a manner that the fluid which flows upwardly therein has a lower speed with increasing height.

[(Fig. 1)]

MARKED-UP VERSION OF THE CHANGES TO THE CLAIMS

3. (amended) Method in accordance with [claim 1 or claim 2] claim 1, characterized in that the substance (73) is acted upon with at least one fluid jet.

4. (amended) Method in accordance with [any one of the preceding claims] claim 1, characterized in that the position of the substance (73) in the bioreactor (61) is measured by a sensor (85); and in that the speed of the fluid in the bioreactor (61) is regulated in dependence on the position of the substance (73) in such a manner that the substance (73) is held in flotation in a predetermined position.

5. (amended) Method in accordance with [any one of the preceding claims] claim 1, characterized in that a downward flow of the fluid which flows in the direction of gravitation is produced in the bioreactor (61) in addition; and in that a gaseous fluid, in particular air or oxygen, is led in into this downwardly flowing fluid.

9. (amended) Bioreactor (61) in accordance with [claim 7 or claim 8] claim 7, characterized in that the first flow chamber (66a) is designed to widen upwardly.

11. (amended) Bioreactor (61) in accordance with [any one of the claims 7 to 10] claim 7, characterized in that at least one fluid line (76b) opens into the first flow chamber (66a), preferably from below or arranged laterally with respect to the flow chamber (66a).

12. (amended) Bioreactor (61) in accordance with [any one of the claims 7 to 11] claim 7, characterized in that at least one fluid guiding means (66) is arranged in the container (62) which forms the first flow chamber (66a), with the fluid guiding means (66) being designed such that the first flow chamber (66a) widens upwardly.

16. (amended) Bioreactor (61) in accordance with [any one of the claims 13 to 15] claim 13, characterized in that the hollow body (66b) is formed in the shape of truncated circular cone.

17. (amended) Bioreactor (61) in accordance with [any one of the claims 7 to 16] claim 7, characterized in that the container (62) has at least one closeable opening (62c) above.

19. (amended) Bioreactor (61) in accordance with [any one of the claims

17 or 18] claim 17, characterized in that the closeable opening (62c) is arranged above the first flow chamber (66a).

20. (amended) Bioreactor (61) in accordance with [any one of the claims 7 to 19] claim 7, characterized in that the fluid conveying apparatus (65) is arranged outside the container (62) and is connected in a fluid guiding manner via lines (70, 71) to the container (62).

21. (amended) Bioreactor (61) in accordance with [any one of the claims 7 to 19] claim 7, characterized in that the fluid conveying apparatus (65) comprises a fluid conveying means (65c), in particular a vaned wheel; and in that the fluid conveying means (65c) is arranged inside the container (62).

24. (amended) Bioreactor (61) in accordance with [claim 22 or claim 23] claim 22, characterized in that the fluid conveying apparatus (65) comprises a magnetic coupling drive which is designed to be adapted for coupling to the rotatable motor part (65b).

25. (amended) Bioreactor (61) in accordance with [claim 22 or claim 23] claim 22, characterized in that the rotatable motor part (65b) of the electric motor is journalled at least with respect to one degree of freedom with actively or passively magnetically acting means.

27. (amended) Bioreactor (61) in accordance with [anyone of the preceding claims] claim 1, characterized in that a second flow chamber (66f) is arranged above the first flow chamber (66a) and is designed in such a way that the fluid flowing from the top to the bottom therein has a smaller speed with decreasing height.